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| 09/147,813      | 08/31/1999  | JEAN-LOUIS BRAVET    | 124707960VPC        | 2264             |

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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/147,813

Applicant(s)

BRAVET ET AL

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 40-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-48 and 50-65 is/are rejected.
- 7) ☒ Claim(s) 49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 112*

2. Claims 53-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The phrase "constituent elements thereof" on line 13 of independent claim 53 render the claim indefinite because it is unclear which component these elements are constituents thereof.

#### *Claim Language*

4. For the purpose of examination, the constituent elements of claim 53 are taken to be constituent elements of the scratch-resistant layer (see claim 56).

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#### ~~*Claim Rejections - 35 USC § 103*~~

5. Claims 40-45 and 52-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirmer (U.S. Patent 5,525,401) in view of Arpac et al. (EP 524,417 A1).

Hirmer teaches a glass free window for a motor vehicle comprising a relatively thin sheet and a relatively thick substrate with an electrically operable defrosting grid between the sheet and the substrate (column 1, lines 39-46). The thin sheet may be formed of polycarbonate and

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have a thickness as low as 5 mils,  $\sim 127 \mu\text{m}$  (column 3, lines 5-14). The thick substrate may be formed of polycarbonate and have a thickness of 50 to 500 mils,  $\sim 1.27\text{-}12.7 \text{ mm}$  (column 3, lines 50-57). The thin sheet corresponds to skin layer b.) of the instant claims and the thick substrate corresponds to plastic layer a.). The grid reads on the functional layer of instant claims 43 and 61. The thin sheet is then mounted against the moulding surface of a die (column 3, lines 36-45). A second die surface is moved in a cooperative relationship forming a die cavity into which the material of the thick substrate is injection molded (column 4, lines 46-64).

Regarding the thickness of the thin sheet, Hirmer teach a thickness of as low as 5 mil, i.e. about  $127 \mu\text{m}$ . A *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). In this case, it would have been obvious to one skilled in the art to have expected the same properties for a polycarbonate sheet having a thickness of 5 mil and  $100 \mu\text{m}$ .

Hirmer do not teach the presence of a scratch resistant layer having a thickness of 1 to  $10 \mu\text{m}$ .

Arpac et al. are directed to a coating for plastic surfaces based on a polysiloxane that provide scratch resistance and abrasion stability (page 8, lines 4-19). The coating may be applied to a plastic such as polycarbonate (page 8, lines 11-13). The coating may be applied by dipping or spraying and has a thickness of 0.1 to  $25 \mu\text{m}$  (page 24, lines 3-10). The coating may be hardened thermally at a temperature of  $130^\circ\text{C}$  (page 25, lines 3-8). The coating comprises two components, A and B, where A is an organometallic compound with a polymerizable ligand

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and B is a polymerizable silane (page 9, line 7-page 10, line 17). As a silane, component B comprises silicon-carbon bonds. Upon mixing, the organometallic compound undergoes hydrolysis and the ligand and silane polymerize resulting in a homogeneous coating (page 12, lines 1-10 and page 13, line 16-page 14, line 18). Thus, the resulting coating will comprise inorganic (from the silane) and organic (from the ligand) molecular chains (resulting from polymerization) in a homogeneous mixture (entangled). Further support that the coating of Arpac et al. reads on that of instant claims 44, 45, and 63-65 can be found in the paragraph bridging pages 4 and 5 of the instant specification.

One skilled in the art would be motivated to apply the scratch resistant coating of Arpac et al. to the window of Hirmer to improve the scratch and abrasion resistance of the window, particularly since Arpac et al. explicitly teach that a problem their coating is designed to solve is tempering soft plastic surfaces used in applications traditionally reserved for inorganic glasses (page 2, line 20-page 3, line 4).

Regarding claim 58, while Arpac et al. teach thermal hardening (i.e. crosslinking) at 130 °C, Arpac et al. also explicitly teach that other temperatures and exposure times may be used depending on the thermal resistance of the substrate and coating. Therefore, it would be obvious to one skilled in the art to optimize the hardening temperature depending on the substrate used. Since polycarbonate has a  $T_g$  of about 150 °C, it would be obvious to raise the thermal hardening temperature above 130 °C to accelerate the hardening process and reduce the overall processing time.

Regarding the requirement that the window meets French standard R43, this standard is directed to determining the suitability of a glazing for use in a motor vehicle. The window of

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Hirmer should meet the limitations of French standard R43 since it appears to be made of the same materials as the instant window and is expressly designed for use as a motor vehicle window.

6. Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirmer (U.S. Patent 5,525,401) in view of Arpac et al. (EP 524,417 A1) as applied to claim 40 above, and further in view of Bier et al. (U.S. Patent 5,849,414).

Hirmer taken in view of Arpac et al. (EP 524,417 A1) teach all the limitations of claims 46 and 47, as outlined above, except for specifically disclosing that the scratch resistant layer comprises a hydrophobic/oleophobic agent obtained from precursor silanes having a hydrolyzable alkoxy or halo functional group at one end and a perfluorinated carbon chain at the other end.

Bier et al. discloses scratch resistant polycarbonate molded parts in which the scratch resistant layer preferably comprises fluorinated silanes to improve water resistance (column 6, lines 3-10).

One skilled in the art would be motivated to add a fluorinated silane to the scratch resistant layer of Arpac et al. to improve the water resistance of the resulting glazing.

7. Claims 48, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirmer (U.S. Patent 5,525,401) in view of Arpac et al. (EP 524,417 A1) as applied to claim 40 above, and further in view of Oliver et al. (U.S. Patent 4,634,637).

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Hirmer taken in view of Arpac et al. teach all the limitations of claims 48, 50, and 51, as outlined above, except for (1) the presence of a decorative or masking layer covering at least part of the window., and (2) the presence of one or more 2-35 nm thick metal layers separated by dielectric layers.

Oliver et al. teach a solar control film that is to be laminated onto a motor vehicle window structure (column 1, lines 5-9). The solar control film has optically selective metal layers having a thickness of within the range of 2-35 nm separated by dielectric layers (Figure 1 and column 5, line 34-column 6, line 19). Oliver et al. also disclose a well known and conventional solar control film dyed in a vignette pattern that is applied to motor vehicle windows to shade the driver without obstructing the driver's sight line (column 1, lines 31-45).

From the teachings of Oliver et al., it would be obvious to one skilled in the art to apply one of the solar control films taught or disclosed by Oliver et al. to the window of Hirmer to reduce the impact of solar radiation on the interior temperature.

#### ***Allowable Subject Matter***

8. Claim 49 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter.

Claim 49 is directed to a glass-free motor vehicle window comprising plastic layer a), skin layer b), and scratch resistant layer c), as put forth in independent claim 40, and further comprising an adhesion layer between plastic layer a) and skin layer b).

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Hirmer represents the closest prior art. However, Hirmer does not teach or fairly suggest the presence of an adhesion layer between the thin sheet and thick substrate. Rather, Hirmer teaches the adherence of the thin sheet and thick substrate by injecting molten material of the substrate against the thin sheet inserted into a mold such that the thin sheet (and defrosting grid) are contacted by the material of the substrate in a molten state (see column 2, lines 38-46).

### ***Response to Arguments***

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. The MatWeb Material Data Sheet for optical grade polycarbonate is provided to illustrate that polycarbonate has a  $T_g$  of about 150 °C.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518.

The examiner can normally be reached on Monday through Friday from 9 to 5.


~~If attempts to reach the examiner by telephone are unsuccessful, the examiner's~~  
supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished



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**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**